

WHAT IS CLAIMED IS:

1. A tool for deep rolling an elongate work piece comprising:
a tool housing;
a shaft mounted in said housing;
a back up roller arranged about said shaft and rotatably supported thereon; and
a two piece work roll cage secured to said housing and retaining at least one
work roll rotatable against said back up roller.
2. A tool according to claim 1 wherein said cage is positioned in a recess formed
along an edge of said tool housing.
3. A tool according to claim 2 comprising two cage members in said recess, each
said cage member defining a portion of a pocket for retaining a work roll.
4. A tool according to claim 3 wherein said cage members each define a portion of
first and second pockets, said cage members opposed about first and second work rolls.
5. A tool according to claim 3 comprising four cage members, wherein each of said
cage members defines a portion of a pocket for retaining a work roll, said cage members
positioned in opposed pairs about two work rolls.

6. A tool according to claim 1 wherein said cage comprises two cage members, each of said cage members having an aperture for receipt of a fastener securing said cage members to said tool housing.

7. A tool according to claim 6 wherein each of said cage members comprises an aperture extending axially therein, said aperture adapted to receive a securing member extending from said tool housing into said recess and securing the corresponding cage member therein.

8. A tool according to claim 7 wherein each of said cage members includes an arcuate portion received in a substantially complementary region of said recess.

9. A tool according to claim 6 wherein:

said tool housing comprises first and second tabs extending from opposite ends of said recess; and

said apertures are formed in lateral sides of said cage members and are adapted to receive a fastener that secures said cage members to said tabs.

9. A tool according to claim 1 comprising a flange extending along an edge of said tool housing, said cage comprising first and second sets of cage members positioned on opposite sides of said flange.

10. A tool according to claim 9 wherein each cage is substantially symmetrical about an aperture formed in a side thereof.

11. A deep rolling apparatus comprising:

an upper tool housing having at least one rolling member engageable with a workpiece;

a lower tool housing having at least one rolling member engageable with the workpiece;

at least one of said upper and lower tool housings includes a shaft mounted therein, and a back-up roller arranged about and supported on said shaft, said back-up roller rotatively supporting said at least one rolling member;

at least one of said upper and said lower tools comprises a two piece cage secured to said tool housing for retaining said at least one rolling member.

12. The apparatus according to claim 11 wherein said two piece cage comprises first and second cage members positioned in a recess formed in said tool housing.

13. The apparatus according to claim 12 wherein a position of said cage members in said recess is adjustable.

14. The apparatus according to claim 13 comprising a threaded fastener rotatable in said housing to adjust a position of one of said cage members.

15. The apparatus according to claim 11 wherein said two piece cage is positioned in said upper tool housing.

16. The apparatus according to claim 11 wherein said two piece cage is positioned in said lower tool housing.

17. The apparatus according to claim 11 wherein at least one of said upper and lower tool housings comprises first and second tool housing members, said housing members rotatable relative to one another between a locked and an unlocked position.

18. An apparatus for deep rolling a workpiece comprising:

a tool housing;

a shaft extending in said housing;

a roller arranged about said shaft and supported thereon;

at least one work roll rotating against said shaft;

first and second cage members positioned about and retaining said work roll, said cage members secured to said tool housing.

19. The apparatus of claim 18 comprising a plurality of opposed sets of cage members secured to said housing, each of said sets of cage members retaining a work roll.

20. The apparatus of claim 19 wherein said tool housing comprises first and second housing members rotatable between a first, locked position and a second, unlocked position;

a first set of opposed cage members secured to said first housing member; and

a second set of opposed cage members secured to said second housing member.